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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,455	05/25/2005	Bernard Resiak	Q87902	6474

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
FOGARTY, CAITLIN ANNE	
ART UNIT	**PAPER NUMBER**
1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,455	RESIAK ET AL.	
	Examiner	Art Unit	
	CAITLIN FOGARTY	4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/25/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1. Claims 1 – 9 are pending and presented for this examination.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) was submitted on May 25, 2005. This submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. Please refer to applicant's copy of form PTO-1449 submitted herewith.

Specification

4. The disclosure is objected to because of the following informalities: p.1 line 10 states "deformability and strenght" which is a typographical error and should state "deformability and strength."

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bangaru et al. (US 6,228,183 from IDS).

In regards to claim 1, col. 1 lines 9 – 16, col. 5 lines 13 – 25 and claims 1 and 2 of Bangaru et al. disclose a steel with an overlapping composition as shown in the table below.

Element	Claim 1 (weight %)	Bangaru et al. (weight %)	Overlapping Range (weight %)
C	≤ 0.15	0.03 – 0.10	0.03 – 0.10
Nb	0.04 – 0.10	0.01 – 0.10	0.04 – 0.10
B	0.001 – 0.005	0.0005 – 0.0020	0.001 – 0.002
Mo	0.15 – 0.35	0.2 – 0.5	0.2 – 0.35
Mn	1.3 – 2.0	1.6 – 2.1	1.6 – 2.0
Si	0.15 – 1.30	0 – 0.6	0.15 – 0.6
Al	0.01 – 0.08	0 – 0.06	0.01 – 0.06
N	≤ 0.015	0.001 – 0.006	0.001 – 0.006
Ti	≥ 3.5 x %N	0.005 – 0.03	Meets condition of claim 1

Fe + impurities	Balance	Balance	Balance
Cu	---	0 – 1.0	0
Ni	---	0 – 1.0	0
V	---	0.01 – 0.10	---
Cr	---	0 – 1.0	0
Ca	---	0 – 0.006	0
REM	---	0 – 0.02	0
Mg	---	0 – 0.006	0

In addition, Bangaru et al. teach that the low-carbon steel alloy can be used to fabricate linepipe which is a mechanical component and therefore the alloy is ready-for-use. They also teach that the steel alloy has a tensile strength of at least about 900 MPa which satisfies the limitation of claim 1 of a tensile strength greater than 800 MPa. Bangaru et al. also disclose that the steel alloy has a microstructure comprising about 50 vol% to less than 90 vol% fine-grained lower bainite, fine-grained lath martensite, or mixtures thereof which satisfies the limitation of claim 1 that the alloy has essentially bainitic structure.

Claim 1 is a product by process claim and even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Therefore the limitations of claim 1 that the alloy has "elevated characteristics obtained by plastic transformation of a laminated long steel product" and the "long steel product being obtained from a semi-finished long product coming from continuous casting and hot-rolled in the austenitic range, then

treated thermally to obtain a bainitic or essentially bainitic structure, and worked by a cold or hot plastic transformation into its final shape" do not have patentable weight.

Since the claimed compositional ranges for claim 1 either overlap or are within the ranges disclosed by Bangaru et al., a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the steel alloy composition from the steel alloy composition disclosed by Bangaru et al. because Bangaru et al. teach a steel alloy with an overlapping composition with that of claim 1 that is also a high strength alloy.

In regards to claim 2, claim 1 of Bangaru et al. teaches that the steel alloy has a microstructure comprising about 50 vol% to less than 90 vol% fine-grained lower bainite, fine-grained lath martensite, or mixtures thereof which satisfies the limitation of claim 2 that the alloy has essentially bainitic structure. Bangaru et al. differ from claim 2 in that they do not disclose that the steel alloy is a rolled wire or rod, but rather teach that the alloy is a steel slab or sheet. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a rolled wire or rod in place of a steel slab or sheet because wires and rods are also common shapes of steel. Additionally, since the composition of the steel alloy recited in claim 1 is obvious in view of Bangaru et al., a different shape of the steel alloy does not make the alloy patentably distinct. See MPEP 2144.04. Claim 2 is also a product by process claim and therefore the process limitations recited in the claim including "deformed by a cold process according to claim 1", "from which it is derived by plastic transformation", and "wire or rod treated thermally by cooling directly during its hot rolling at a cooling rate

sufficient to provide it with a bainitic or essentially bainitic structure" do not have patentable weight. See MPEP 2113.

Claims 3, 4, and 5 are dependent on claims 1, 2, and 3, respectively and are product by process claims. Claims 1 and 2 are obvious in view of Bangaru et al. as discussed above. All of the additional limitations recited in the claims 3 – 5 are process limitations and therefore do not have patentable weight as discussed above. See MPEP 2113.

Claim 6 further limits the composition of carbon in the steel mechanical component of claim 1 to 0.06 – 0.10 wt%. This range still overlaps with the range of 0.03 - 0.10 wt% taught in Bangaru et al.

Claim 7 further limits the composition of molybdenum to ≤ 0.30 wt% and the composition of manganese to < 1.80 wt% in the steel mechanical component of claim 1. Both of the recited composition limitations still overlap with the compositional ranges disclosed in Bangaru et al. of Mo: 0.2 – 0.5 wt% and Mn: 1.6 – 2.1 wt%.

In regards to claim 8, col. 1 lines 9 – 16, col. 5 lines 13 – 25, col. 7 lines 21 – 59, col. 18 lines 1 – 15, and claims 1 and 2 of Bangaru et al. disclose a process for manufacturing a ready-for-use low-carbon steel mechanical component with a tensile strength of at least 900 MPa with an overlapping composition with that recited in claim 8 (see table above for claim 1 for comparison). Bangaru et al. also disclose that in the process a long product (slab or sheet) is rolled when hot and the finish rolling temperature given in Pass 7 in Table 1 is 827°C which satisfies the limitation in claim 8 of a removal temperature below 1000°C. Then the resulting rolled long product is

subjected to a heat treatment comprising a final slow cooling phase of a least about 10°C./s which satisfies the limitation of a rate as low as 1°C./s recited in claim 8. The cooling is performed to obtain a microstructure of predominantly fine-grained lower bainite, fine-grained lath martensite, or mixtures thereof. Bangaru et al. also teaches that the steel slabs may then be subjected to plastic deformation to be formed into linepipe.

Bangaru et al. differ from claim 8 in that the do not teach that the long product is a wire or rod. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a rolled wire or rod in place of a steel slab or sheet because wires and rods are also common shapes of steel. Additionally, since the composition of the steel alloy recited in claim 8 is obvious in view of Bangaru et al., a different shape of the steel alloy does not make the alloy patentably distinct. See MPEP 2144.04. Since the claimed compositional ranges for claim 8 either overlap or are within the ranges disclosed by Bangaru et al., a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the steel alloy composition from the steel alloy composition disclosed by Bangaru et al. because Bangaru et al. teach a steel alloy with an overlapping composition with that of claim 1 that is also a high strength alloy.

Claim 9 recites a long low-carbon steel product with the same composition as that recited in claim 1 (see claim 1 rejection). Claim 9 additionally recites that the product is intended for transformation into a ready-for-use mechanical component of elevated characteristics which is intended use and does not have patentable weight.

See MPEP 2111.02. However, Bangaru et al. teach that the steel alloy may be used to fabricate linepipe which is a ready-for-use mechanical component. Bangaru et al. differ from claim 9 in that the do not teach that the long product is a wire or rod. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a rolled wire or rod in place of a steel slab or sheet because wires and rods are also common shapes of steel. Additionally, since the composition of the steel alloy recited in claim 9 is obvious in view of Bangaru et al., a different shape of the steel alloy does not make the alloy patentably distinct. See MPEP 2144.04.

Conclusion

8. No claim is allowed. All pending claims are rejected.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CF

/Vickie Kim/
Supervisory Patent Examiner, Art Unit 4116